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ABSTRACT

A study of one grade cohort of students taught in a Chicago Mastery Learning Reading (CMLR) Program was extended to two additional cohorts, one older and one younger than the original group but who were taught using the same method. The students' reading comprehension test scores were compared with those of students in other schools, not taught by the CMLR method. The findings were similar to those for the original group, showing the younger students' performance to be slightly lower than the control group's and the older students' to be higher than national, regional, and control group norms. The apparent inconsistency of program results across years suggests that any CMLR program impact should be looked for by other means. (MSE)

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Research Department

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Comparative Reading Comprehension Skills of grade 4 and 7 Students
in a Chicago Mastery Learning Reading Program, 1985-86
(a supplement to a longitudinal study of the grade 5 cohort)

Background

A Chicago Mastery Learning Reading (CMLR) program was introduced at Kettleby P.S. in Sept. 1983. Monitoring of one of the orignal student cohorts (grade 3) was begun in April, 1984. The intention then and in the next two years (when the cohort was in grades 4, and then 5) was to see whether there were significant differences in reading comprehension performance between the CMLR cohort and a matched (on IQ and community characteristics) group of students in several other nearby schools.

The attainments (as measured by a sequence of Cloze tests and CTBS) of these students were reported annually. The CMLR grade 3 group scored initially higher than, then lower than, then equal to, the comparison group. The report Performance of Grade 5 students in a CMLR program on the CTBS Test of Reading Comprehension, October 1985 (Feb. 1986) reviews findings over the years. The report offers possible explanations of the observations as well as analyses of achievement differences by "skill objectives," as defined by the Canadian Tests of Basic Skills (CTBS).

That report also recommended that because of the inconclusiveness of the study of one CMLR cohort, that the inquiry be extended to two other grades that had also been taught with the Chicago materials and methods. Thus the autumn 1985 scores attained on the Reading Comprehension Battery of the CTBS by the grade 4 and grade 7 students at Kettleby and the comparison schools were examined.

Findings

(a) Grade 4

The grade 4 cohort at Kettleby P.S. is small; 15 students took the CTBS Reading Comprehension battery in October 1985.

The comparison group was drawn from the four YRBE elementary schools that share attendance boundaries with Kettleby.

Similar socioeconomic conditions are to be found across the catchment areas of these five schools although Kettleby is among the somewhat more "rural". All students, including those in the comparison schools were in "mainstream" programs (i.e., not in classes for the gifted or French immersion; such students had been included in the original study). In previous reading testing, two of the schools had averages generally equal to or greater than Kettleby's while two had somewhat lower mean averages.

While the original study groups (grade 3 students in 1983-84) had been matched on IQ scores attained in the initial year of the study, no such matching was attempted in the current inquiry.

This is what the 1985 test records show.

Table 1: Grade 4 CTBS Reading Comprehension scores, Autumn 1985

"School(s)"	No. Students	Average Score*	Grade Equivalent
Kettleby (1 class)	15	20.6	4.0
Comparison group (4 schools, 5 classes)	115	21.3	4.0
All YRBE grade 4 students	3,021	23.0	4.2

* On an individual basis, a score of 21 corresponds to the typical average score for an October administration; for an autumn administration, a score of 22 equals a 4.2 G.E. or 50 percentile. For "school averages" the scaling is somewhat different (see foot of page).

This table includes the results for students whose test papers were "flagged" (marked separately and scores not included in the YRBE school or summary reports). "Flagged" test papers include, for example, Special Education or ESL students or students who may have been ill just before or during the testing period. There were four such "flagged" students in this study, all at one school. Their mean scores averaged 18.5 but only one student had a very low score. There were a total of 96 students "flagged" for the YRBE grade 4 reading comprehension test. Their average score was 16.3. A recalculation was made for Table 1 when it became clear that there is considerable difference in this "flagging" practice among the schools in this study. Kettleby and two other schools had scores that suggest that some of their students are de facto Special Education cases but none were "flagged".

The score difference between the Kettleby and comparison group was found to be not statistically significant at the 0.05 level. Moreover, it would be difficult to maintain that a difference of 0.7 of an item on a 49-item test was of practical significance. The Kettleby mean average score is about where it has historically been with respect to these five schools, the "middle of the pack".

Table 2: Rank order of schools, grade 4 test results

School	Average Score	School Percentile
A	25.0	69
B	24.8	69
National and Regional mean	23.0	53
Kettleby	20.6	37
C	19.1	24
D	17.4	14

The "School Percentile" figures show the relative status of a school's mean grade average compared with all the averages of the schools in the norm population. Thus a score at the 69 percentile indicates that the grade 4 students at schools A and B had, on average, achieved as high or higher than 69% of schools in the national norm sample. These data help us to appreciate the variance within our study group.

Additional observations can be made with either the Regional mean average score (23.0) or the range of mean scores in this population (7.6) as the focus for study.

This distribution of school mean scores suggests not only great achievement differences within the group of schools, but significant variations from the Regional norm at each extreme (25.0, 17.4). Given that the schools are in close proximity (geographically, socioeconomically), differences on this scale may warrant further inquiry.

Comparison (of school averages) with the national norm for an autumn administration (23 raw score points = 4.2 grade equivalent = 53 percentile) adds the observation that Kettleby's grade 4 students and those in two of its neighbours likely scored on average below the national norm, even if allowance is made for the inclusion of Special Education youngsters (not included in the CTBS norm population).

Item analysis was not called for in the recommendation because such information, by class and by school, had already been reported for the grade 4 and 7 students. When the 1985 grade 5 groups were studied, analyses of by-school performance showed some differences in the response patterns (related to skills objectives) between the CMLR cohort and comparison group.

In summary, there is no evidence that the CMLR program and materials make a meaningful difference in the reading comprehension skills of these Kettleby students by the beginning of their grade 4 year.

(b) Grade 7

The grade 7 cohort at Kettleby consists of one class of 28 students that sat for the CTBS reading test in the autumn of 1985.

The comparison group was again drawn from schools that share attendance boundaries. However, because of a Senior Public School organization south of Kettleby, the total catchment area in that sector is somewhat greater than for the Junior Public School in the grade 4 study. To offset the effect of a greater number of students from the south-westerly Senior P.S., grade 7 students from two additional schools (one a Senior P.S.) to the southeast and east of Kettleby were added. In all, there were five schools, 10 classes, and 264 students in the comparison group.

As with the grade 4 study, the test data to be presented have been recalculated to include "flagged" students. In our study group of six schools there were only three "flagged" students, again all in one school. For the whole system there were some 57 "flagged" grade 7 students. (The impact on scores of inclusion of "flagged" students is negligible at the system and comparison group level, about 0.2 of a raw score point on a 57-item test. The impact on the one school in the study was 0.6, not enough to change its relative position within the six schools).

Table 3: Grade 7 CTBS Reading Comprehension scores, Autumn 1985

"School(s)"	No. Students	Average Score	Grade Equivalent
Kettleby (1 class)	28	33.5	7.6
Comparison group (5 schools, 10 classes)	267	31.6	7.4
All YRBE grade 7 students	3,111	31.1	7.2

The difference between the mean scores of the Kettleby and comparison group was tested for signifance and there was no statistical significane at the 0.05 level. Again, as in the grade 4 study, the standard deviations were large and the numbers in the study relatively small. Hence, a large score difference was needed before we could assert that such a difference could only be expected to happen 5 times in 100 by chance along. Another way to put the differences into perspective is to observe that the standard error of measurement for an individual pupil on this test is about 2 raw score points. Nonetheless, the Kettleby average score puts it into top quartile, as we see in Table 2.

How close to the "middle of the pack" were the Kettleby grade 7 students as a group?

Table 4: Rank order schools, grade 7 test results

School*	Avg. Score	School Percentile
C	34.8	89
Kettleby	33.5	79
E	31.9	59
F	31.2	52
Regional Mean	31.1	52
National Mean	31.0	52
G	30.5	39
D	30.0	34

* Schools A and B in the grade 4 study do not have grade 7; many pupils from A and B subsequently attend School E.

As Table 4 suggests, there were very creditable performances at the two highest scoring schools, Kettleby included. There is no manageable way of teasing out the contribution of CMLR to the Kettleby students' performance. However, we can note that the performance of students at school C was higher than at Kettleby at the grade 4 level in 1982, i.e., before CMLR's introduction. No attempt has been made to determine to what extent the current grade 7 classes have changed (e.g., due to transfer-outs or admissions) or how programs have changed at School C (they assuredly have) since there is no relative ranking change to account for.

Again we can note the considerable variance within a relatively small and homogeneous community. An average difference of almost 5 raw score points on a 57-item test merits attention.

Kettleby's grade 7 reading scores, if not statistically significant from the mean of the region or national or local comparison group, are in the superior range on this occasion. So, we must remind ourselves, were the Kettleby grade 3 students' reading scores in 1984. In the subsequent years those scores dipped toward the low end of the distribution (1984-1985) before returning to the "middle of the pack" (1985-1986).

Overview and conclusion

What can we make of this supplementary excursion into two other CMLR cohorts at Kettleby? Given the up, down, regress-to-the mean pattern for the initial study group (grade 3 in 1983-1984), we should not perhaps be surprised to find the present grade 4 in the middle of the distribution (and a bit below the regional and national norms) and, at the same time find the Kettleby grade 7 students well above the national, regional and comparison group achievement levels.

The apparent inconsistency or randomness suggests that the impact (if any) of CMLR on reading comprehension has to be looked for by other means. These would not necessarily exclude standardized testing. Certainly something more than we have been able to do with current test data seems required if there is any wish to lower the level of uncertainty about the worth of CMLR. Whether more ambitious inquiry is warranted may depend on how Kettleby staff now feel about their experience with CMLR.